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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,649	07/16/2003	Gordon S. Hewitt	024.0007	1037
29906	7590	09/07/2005	EXAMINER	
INGRASSIA FISHER & LORENZ, P.C. 7150 E. CAMELBACK, STE. 325 SCOTTSDALE, AZ 85251			PIZIALI, JEFFREY J	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/621,649

**Applicant(s)**

HEWITT ET AL.

**Examiner**

Jeff Piziali

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/16/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see Paragraph 13 in the Specification). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "201" has been used to designate both the "Data Processing System" (see Paragraph 13 in the Specification) and an "Aerial Refueling Station" (see Fig. 2). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

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informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "218R" and "218L" (see Fig. 2). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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6. Claim 1 recites the limitation "the stereoscopic image points" in line 10. There is insufficient antecedent basis for this limitation in the claim.

7. Claims 1, 7, 17, 18, 21, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are between the "at least one aperture" and the "at least one apertures," as recited respectively in each claim. One having ordinary skill in the art would be unable to determine the claims refer to a single "at least one aperture" or to multiple separate and distinct "at least one apertures."

8. Claims 2-6, 8-10, 19, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-16 and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Kakizawa (US 6,580,556 B2).

Regarding claim 1, Kakizawa discloses a display system [Fig. 1; 10] for presenting a stereoscopic image [Fig. 1; 12a, 12b] to an observer [Fig. 1; A, B], the display system comprising: a plurality of cameras [Fig. 2; 18a-18d], each camera being configured to obtain a video image; a video processor [Fig. 3; 20] configured to receive the video images from each of the plurality of cameras [Fig. 3; 18] and to formulate image data therefrom; and a stereoscopic display [Fig. 3; 12] having a left module [Fig. 2; 12b] and a right module [Fig. 2; 12a], wherein each of the left and right modules comprises an eyepiece [i.e. "special filtering lenses"] (see Column 1, Lines 15-24) and a display panel [Fig. 2; 12a, 12b] with at least one aperture [Fig. 2; 16] located therebetween, wherein the stereoscopic display is configured to receive the image data from the video processor and to produce the stereoscopic image points on the display panels as a function thereof, and wherein the at least one apertures are configured to form a window [Fig. 2; 14] obscuring at least a portion of the stereoscopic image from the observer (see Column 1, Line 45 - Column 2, Line 50).

Regarding claim 2, Kakizawa discloses the stereoscopic display is a head-mounted display [e.g. "stereoscopic viewing glasses"] (see Column 1, Lines 15-24).

Regarding claim 3, Kakizawa discloses the at least one aperture is located substantially midway between the eyepiece and the display panel (see Fig. 1; Column 1, Line 45 - Column 2, Line 16).

Regarding claim 4, Kakizawa discloses the video image comprises a convergence point [Fig. 2; 16] corresponding to the intersection of centerlines projecting from each of the plurality of cameras (see Column 2, Lines 17-40).

Regarding claim 5, Kakizawa discloses the stereoscopic display comprises a display convergence point [Fig. 1; 16] corresponding to the intersection of centerlines projecting from the left and right modules (see Column 1, Line 45 - Column 2, Line 16).

Regarding claim 6, Kakizawa discloses the stereoscopic display comprises a focus point [Fig. 1; A, B] at a location distinct from the display convergence point (see Column 1, Line 45 - Column 2, Line 16).

Regarding claim 7, this claim is rejected by the reasoning applied in rejecting claims 1, 2, 5, and 6; furthermore Kakizawa discloses eliminating frame violations in the stereoscopic image (see Fig. 4; Column 3, Lines 1-28).

Regarding claim 8, Kakizawa discloses each of the plurality of cameras are oriented toward each other at a camera convergence angle (see Fig. 2; Column 2, Lines 17-40).

Regarding claim 9, Kakizawa discloses the left and right modules are oriented toward each other at a display convergence angle substantially equal to the camera convergence angle (see Fig. 2; Column 2, Lines 17-40).

Regarding claim 10, Kakizawa discloses the display and camera convergence angles are substantially equal to nine degrees (see Fig. 2; Column 2, Lines 17-40).

Regarding claim 11, this claim is rejected by the reasoning applied in rejecting claims 1 and 7; furthermore Kakizawa discloses a method [Fig. 1; 10] of producing a stereoscopic image of a scene on a stereoscopic display [Fig. 1; 12a, 12b] for an observer [Fig. 1; A, B], the method comprising the steps of: obtaining at least two video signals [Fig. 2; 18a-18d] of the scene; processing [Fig. 3; 20] the at least two video signals to generate stereoscopic image data; displaying the stereoscopic image on the stereoscopic display; and obscuring [Fig. 2; 14] at least a portion of the stereoscopic display from the observer with a mid-window [Fig. 2; 16] (see Column 1, Line 45 - Column 2, Line 50) to thereby prevent frame violations in the stereoscopic image (see Fig. 4; Column 3, Lines 1-28).

Regarding claim 12, this claim is rejected by the reasoning applied in rejecting claims 1 and 5.

Regarding claim 13, this claim is rejected by the reasoning applied in rejecting claim 6.

Regarding claim 14, this claim is rejected by the reasoning applied in rejecting claim 1.

Regarding claim 15, this claim is rejected by the reasoning applied in rejecting claim 4.



Regarding claim 16, Kakizawa discloses the convergence point [Fig. 1; 16] is located closer to the plurality of cameras than a closest object [e.g. the user] appearing in the scene (see Column 2, Lines 17-40).

Regarding claim 21, this claim is rejected by the reasoning applied in rejecting claim 1.

Regarding claim 22, this claim is rejected by the reasoning applied in rejecting claims 1, 2, and 5-7.

Regarding claim 23, this claim is rejected by the reasoning applied in rejecting claims 1 and 7; furthermore, Kakizawa discloses at least one aperture located between the display panel and the operator.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakizawa (US 6,580,556 B2) over the instant application's description of prior art.

Regarding claim 17, this claim is rejected by the reasoning applied in rejecting claims 1 and 7; furthermore Kakizawa does not expressly disclose using a stereoscopic imaging device within an aerial refueling system. However, the instant application's description of prior art does disclose using a stereoscopic imaging device within an aerial refueling system for assisting an operator in controlling a refueling boom coupled to an aircraft (see Fig. 1; Paragraphs 2-5 and 12-13 in the Specification). Kakizawa and the instant application's description of prior art are analogous art, because they are from the shared inventive field of stereoscopic imaging systems. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use Kakizawa's stereoscopic imaging device within an aerial refueling system as taught by the instant application's description of prior art, so as to provide a more lifelike or three dimensional image of the refueling aircraft.

Regarding claim 18, this claim is rejected by the reasoning applied in rejecting claims 1, 2, 4, 5, and 17; furthermore the instant application's description of prior art discloses an aerial refueling system for assisting an operator in controlling a refueling boom providing fuel to a receiving aircraft (see Fig. 1; Paragraphs 2-5 and 12-13 in the Specification).

Regarding claim 19, this claim is rejected by the reasoning applied in rejecting claim 6.

Regarding claim 20, this claim is rejected by the reasoning applied in rejecting claim 2.

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13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

#### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Morita et al (US 2003/0133191 A1), Harada et al (US 6,259,426 B1), Aritake et al (US 5,872,590 A), and Kirk (US 5,379,133 A) are cited to further evidence the state of the art pertaining to presenting stereoscopic images.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



31 August 2005



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